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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,325	04/19/2004	Hans Ulrich Frutschi	61277-0013	1062

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EXAMINER	
EDGAR, RICHARD A	

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/826,325	FRUTSCHI, HANS ULRICH	
	Examiner	Art Unit	
	Richard Edgar	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4 and 6-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4 and 6-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Arguments

Applicant's arguments filed 05 June 2006 have been fully considered but they are not persuasive.

Applicant argues Kane (US Patent No. 2,549,819) is silent with respect to introducing water into a boundary flow, or along the inner wall of the stator.

This argument is unpersuasive since Kane shows the nozzles 21 arranged along the stator wall 11, wherein the water is inherently introduced along the stator wall, which as one having ordinary skill in the art appreciates, is where the boundary layer flow occurs in a gas turbine axial compressor.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Hampton and Kane are both axial flow turbine compressors with modified stator casings affecting the boundary layer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent No. 2,549,819 (Kane hereinafter).

Kane teaches an axial flow compressor adapted to condition an airflow, the axial flow compressor comprising: an entrance 14, an exit (defined by flange 18), a central rotor 15 and a stator 11 surrounding the rotor, with the rotor and stator being coaxially arranged about an axis 16; means 21 for introducing water into a boundary flow of the airflow disposed at an inner wall of the stator.

The means comprises a plurality of nozzles 21 circumferentially arranged on the stator. The axial flow compressor further comprises alternating blades 17 and vanes 13, wherein the nozzles 21 are mounted between adjacent vanes and blades (see deflector 25 in Fig. 5). The nozzles 21 are arranged proximate the entrance of the axial compressor in flow direction (see Fig. 1; stage 3 of 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 3,632,223 (Hampton hereinafter) in view of United States Patent No. 2,549,819 (Kane hereinafter).

Hampton shows an axial flow compressor 12 comprising an entrance, an exit, a central rotor 22 and a stator 10 surrounding the rotor, with the rotor and stator being coaxially arranged about an axis, in which the airflow is drawn in at the entrance and compressed along the axis, wherein a portion of the airflow is bled before the exit in the flow direction (see Fig. 2) for use as cooling air (see col. 2, lines 4-6).

Hampton does not teach to inject water through a plurality of nozzles arranged between a row of adjacent blades and vanes proximate the compressor entrance in order to cool the compressor air following evaporation.

Kane teaches a compressor having a plurality of water injection nozzles 21 arranged between a row of adjacent blades 17 and vanes 13 proximate the compressor entrance 14 in order to cool the compressor air flowing evaporation (see col. 1, lines 45-49).

Since Hampton show the desire of relatively cool compressor air, and Kane teaches how to lower the temperature of compressor air, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the compressor of Hampton to have the Kane water injection nozzles for the purpose of lowering the temperature of the compressor bleed air supplied to the turbine components.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent No. 2,549,819 (Kane hereinafter) as applied to claim 10 above, and further in view of United States Patent No. 3,632,223 (Hampton hereinafter).

As discussed above, Kane teaches an axial flow compressor adapted to condition an airflow, the axial flow compressor comprising: an entrance 14, an exit (defined by flange 18), a central rotor 15 and a stator 11 surrounding the rotor, with the rotor and stator being coaxially arranged about an axis 16; a plurality of nozzles 21 circumferentially arranged on the stator 11 for introducing water into a boundary flow of the airflow disposed at an inner wall of the stator.

Kane however, does not teach the compressor further comprising an outlet disposed between the nozzles and the exit for receiving air.

Hampton shows an axial flow compressor 12 comprising an entrance, an exit, a central rotor 22 and a stator 10 surrounding the rotor, with the rotor and stator being coaxially arranged about an axis, in which the airflow is drawn in at the entrance and compressed along the axis, wherein a portion of the airflow is bled before the exit in the flow direction (see Fig. 2) for use as cooling air (see col. 2, lines 4-6) in the downstream turbine components.

Since Kane teaches the use of water to lower the temperature of compressor air, and Hampton teaches the use of compressor air to cool turbine components, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the Kane compressor to have a bleed circuit, as taught by Hampton, for the purpose of cooling downstream turbine components.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

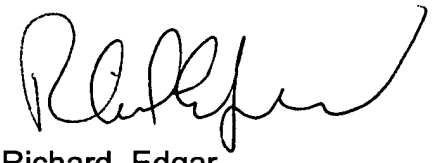
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Edgar whose telephone number is (571) 272-4816. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7 am- 5 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Edgar
Examiner
Art Unit 3745

RE